

# Energy Provisions of the Kentucky Residential Code

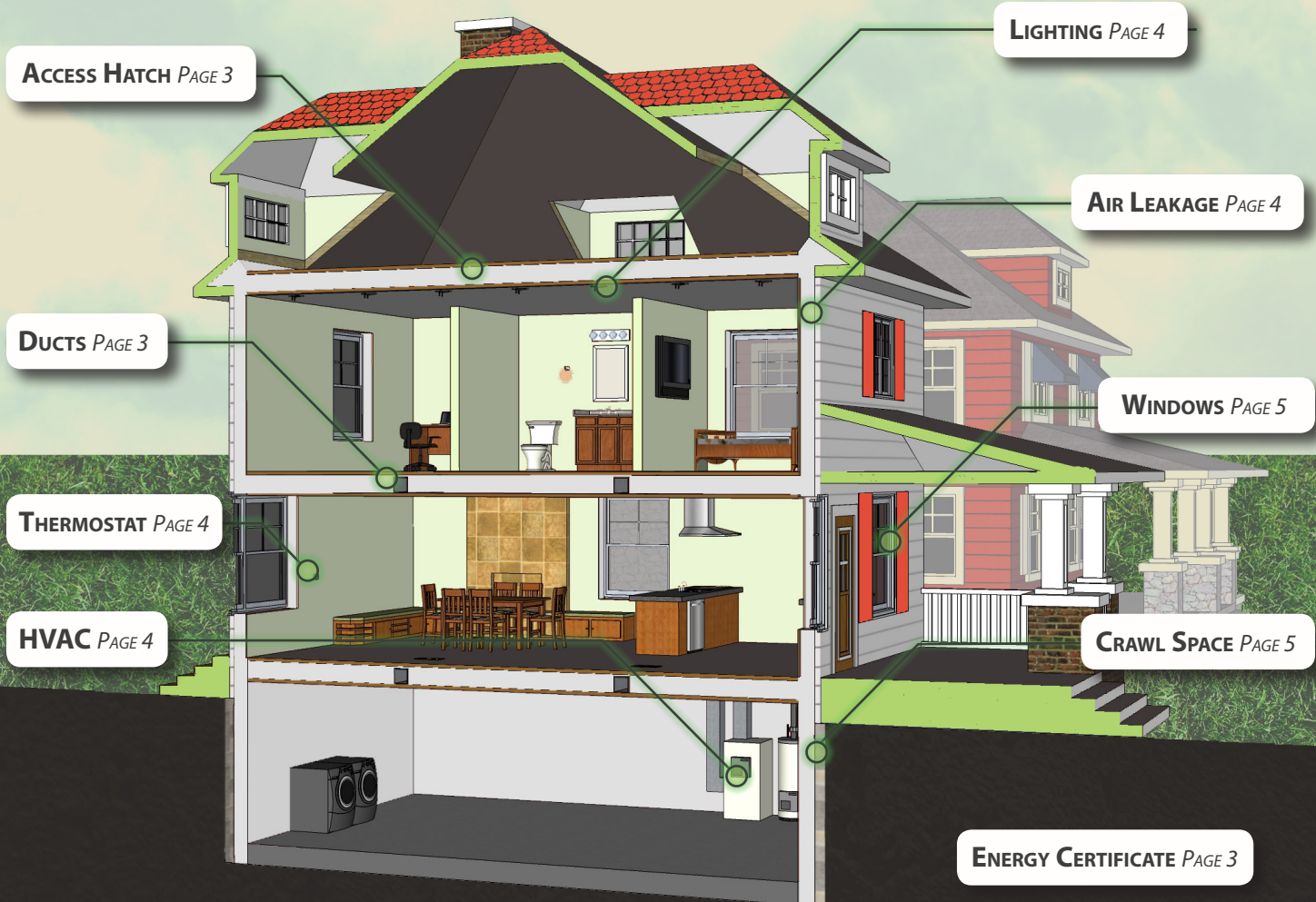
Guide for Homeowners



# Kentucky Energy Code Guide

## FOR HOMEOWNERS

If you are interested in buying a home or want to learn about the energy code and how to make your home more energy efficient, this checklist provides a quick way to assess energy performance and identify opportunities to improve energy efficiency.



This checklist doesn't cover every aspect of Kentucky's energy code, but it addresses the requirements that are easiest to understand and see in a home after construction is complete. Energy-efficient homes are more comfortable, cost less to operate and reduce air pollution.



## FOR HOMEOWNERS

### Energy Certificate

As of November 2007, the energy code in Kentucky has required builders to attach permanent certificates on or in the circuit breaker box (i.e. electrical panel box) listing the materials and equipment values and ratings that demonstrate that a new home meets code requirements. The certificate is an important means by which the consumer can verify that the home complies with the code. Is there a certificate attached to your electrical panel?

ENERGY CONSERVATION CERTIFICATE KRC 2013		
CODE METHOD:	Prescriptive	DATE: 4/25/2015
R-VALUES		
CEILING/ROOF:	38	WALLS: 13
FLOORS:	19	DUCTS: 8
U FACTOR		
BASEMENT WALLS:	10/13	
WINDOWS:	0.35	DOORS: 0.35
HVAC		
TYPE:	Forced Air	EFFICIENCY: SEER-13
WATER HEATER		
TYPE:	Gas Fired > 50 Gal.	EFFICIENCY: .60 EF
GENERAL CONTRACTOR:	K+M Contractors	
INSULATION CONTRACTOR:	RKM Insulation	
FORM COMPLETED BY:	C.P.	

2013 KRC Energy Certificate Examples

2013 KRC Energy Certificate		
Compliance Method		Date
Prescriptive		5/1/2015
Insulation		R-value
Ceiling/Roof		38
Walls		13
Floors		19
Ducts		8
Basement Walls		10/13
Window and Door Ratings		U-factor
Windows		0.35
Doors		0.35
HVAC Equipment		Type Rating
Gas Boiler		75% AFUE
Water Heating		Type EF value
Water Heater	50 Gal., Gas	0.60
General Contractor:		K+M Contractors
Insulation Contractor:		RKM Insulation
Form Completed By:		A.P.

\*10/13 means R-10 continuous insulated sheathing on the interior or exterior of the home (sealed at joints) or R-13 cavity insulation at the interior of the basement wall.

### Attic Access Hatch/Door Insulation

Attic access can be a major source of air leakage in homes, causing utility bills to be high and creating uncomfortable drafts. According to Kentucky minimum standards, hatches/doors to the attic must be weather-stripped and insulated. They should be well-made so that they are airtight when you close them. (Test by closing door or hatch on a piece of paper. Can the paper be easily pulled out when the hatch/door is closed? If yes, the door/hatch is not airtight.) The insulation should be the same value as the surrounding areas and attached so that it isn't damaged or become loose when the hatch or door is opened and closed.

### Ductwork

Ductwork should be insulated and sealed. Leaky ducts can be responsible for 10-30% of energy loss in a home.

- Unless the attic ceiling (underside of the roof) and walls are insulated, where supply ducts run through attic space, Kentucky's energy code requires that they be insulated to a minimum of R-8. All other ducts outside the building thermal envelope shall be insulated to a minimum of R-6. Are the ducts in the attic insulated? Look at the label on the ductwork insulation – what R-level is it?
- Is all ductwork sealed properly? All ducts and air handlers are required to be sealed with mastic (a special type of sealant that is easily visible); duct tape isn't sufficient. Both UL 181 compliant tape and mastic are allowed since they will stand the test of time and help reduce energy waste. Without proper sealing, your system will simply be heating (or cooling) the attic or crawl space – wasting considerable energy. In existing homes, leakage should be assumed and mastic should be applied along every seam and connection.



Insulated attic hatch and insulated ducts 1



This duct has been sealed but not insulated 2



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### □ Programmable Thermostat

Programmable thermostats can generate annual energy savings of 10%. According to the energy code, homes with forced-air furnaces must have programmable thermostats installed. Regardless of the heating and cooling system in a home, programmable thermostats can save money. The cost averages from around \$40 for simple programmable thermostats to up to \$250 for smart thermostats.



A programmable thermostat

### □ Heating, Ventilation, and Air Conditioning (HVAC) Systems

Improper installation of heating and air conditioning systems can waste significant energy and result in costly utility bills. All contractors installing new systems (rather than replacement systems) must be licensed by the state, apply for permits to install systems, and must have new installations inspected. If you are getting a system installed or replaced, ensure the quality of your new system by asking the contractor to apply for a permit and have the system professionally inspected after the installation is complete. To determine whether a contractor is licensed, get the name of the person who did the installation and visit [ky.joportal.com/license/search](http://ky.joportal.com/license/search). Contact the Division of HVAC (502-573-0395) with any questions or concerns.

### □ Energy Efficient Lighting

Lighting has an enormous impact (approximately 12%) on the energy use in homes. The energy conservation code requires that builders put high efficiency light bulbs in at least 50 percent of hardwired lighting fixtures. High efficiency bulbs can include compact fluorescents, T8 or lower linear fluorescents, LEDs, etc.



A compact fluorescent (CFL) bulb

### □ Air Leakage

Look for sources of air leaks into and out of the home. Air leakage is responsible for 30% or more of the energy loss in homes. All joints, seams, and penetrations between the inside and outside of the home should be sealed. Typically, caulk, spray foam or weather stripping is used to seal air leaks.

- Check to see whether leaks have been sealed in a home by looking at where phone lines, electrical lines, plumbing and other services enter the house. Are the holes plugged with caulk or other sealants?
- Check the holes in the attic floor where pipes and ducts lead to the rooms below. Are they sealed with foam, caulk, or other materials to prevent airflow?
- Open the cabinets under the kitchen sink, under the kitchen island, under bathroom sinks, etc., and look at pipes leading to the floor below or out through walls. Are the spaces around the pipes filled with caulk, foam, or other materials to prevent airflow?
- In the basement, look at exterior walls where pipes and wires lead to the outside. Are there airspaces around the pipes/wires or have they been sealed?
- Check where pipes and ducts pass up through the basement ceiling to the floor above. Are there gaps and spaces that create drafts and waste energy or are they sealed tightly?

#### **Why Do Air Leaks Matter?**

If a home is not properly sealed, dirt, dust, and moisture enters the home and can lead to a variety of respiratory problems including asthma and allergies. Did you know that up to 40 percent of the air we breathe on the first floor of our home comes from the crawlspace?




## FOR HOMEOWNERS

### □ Windows

Windows and doors account for 18-20% of energy loss in homes. There are a number of factors that should be considered in evaluating older windows, as energy performance varies significantly based on the material that windows are made from and the condition they are in.

- Can you see daylight around the sides of the window frame or sash?
- Are windows loose in their tracks; can you slip a piece of paper between the sash and frame when they are closed and locked?
- What are the windows made of? Aluminum is typically a poor insulator. Fiberglass, wood, and vinyl do a better job, but much depends on the construction of the windows.

 <b>World's Best Window Co.</b> Millennium 2000+ Vinyl-Clad Wood Frame Double Glazing • Argon Fill • Low E Product Type: <b>Vertical Slider</b>	
ENERGY PERFORMANCE RATINGS	
U-Factor (U.S./I-P) <b>0.30</b>	Solar Heat Gain Coefficient <b>0.30</b>
ADDITIONAL PERFORMANCE RATINGS	
Visible Transmittance <b>0.51</b>	Air Leakage (U.S./I-P) <b>0.2</b>
Condensation Resistance <b>51</b>	<b>—</b>
<small>Manufacturer stipulates that these ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not recommend any product and does not warrant the suitability of any product for any specific use. Consult manufacturer's literature for other product performance information. www.nfrc.org</small>	

A sample window certificate

- Are windows single, double, or triple-paned? Note: storm windows installed over single-paned windows can perform about as well as conventional double-paned windows, but do not match the performance of high-performance windows with low-E glass and gas fills.
- The ability of double or triple-paned windows to block heat transfer depends greatly on whether they are "low-E coated". Low-E coatings are invisible, but can be detected by specialists.

To learn more about window technology and benefits, please visit the Efficient Windows Collaborative web site: [www.efficientwindows.org](http://www.efficientwindows.org)



Double-paned window with an insulated fiberglass frame

### □ Crawl Space

Get under the house and get to know the crawl space. Either the floor over the crawl space should be insulated or (preferred) the crawl space walls should be insulated and the crawl space should not be vented. Insulation should be attached securely without gaps.



Crawl space vent



Proper installation (no vent)



Improper installation



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Additional information can be found at the Kentucky Department of Housing, Buildings, and Construction's web site:

<http://www.dhbc.ky.gov/Pages/default.aspx>

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